

BRIEFER ARTICLES.

NOTES OF TRAVEL. I.

VENEZUELA.

THE aim of the expedition with which the writer is connected, as planned by Mr. Barbour Lathrop, of Chicago, and carried out at his own expense, has forbidden any exhaustive research into the botanical resources of South American countries. It has permitted rapid comparisons, however, and it is these comparative sketches which it is believed will interest American botanists.

The first approach to a great continent, if it has thousands of square miles of unexplored territory in it, as South America has, is always impressive. La Guayra, the principal port of Venezuela, satisfies one's preconceived notions of tropical luxuriance of vegetation. The steep mountains behind the town shut it in like a green wall, and the low hanging clouds and dark rainy valleys, into one of which the famous railroad to Caracas disappears, are characteristically tropical. By characteristically tropical the writer may give a wrong impression, since what could be characterized as tropical in one region might not be true of another. The xerophytes are as abundant in the tropics as in temperate regions, although in the popular mind they are not characteristic of the tropics. Venezuela landscapes show a larger proportion of xerophytes than I had expected to see, and a ten minutes' tram ride to the small bathing place of Moquendo gave me a good opportunity of seeing the characteristic cactus vegetation of the coast. Almost barren patches of reddish-brown soil and frequent signs of prairie fires on the hillside surprise one, while the tufted grasses, agaves, and cacti give the whole a decidedly arid look. The climate of La Guayra is a dangerous one for foreigners, as the malarial fevers there are very severe. We were informed, however, by intelligent English people living in Caracas that the latter are no more severe than those of Caracas itself. From my friend's most uncomfortable experience it is evident that the capital has a serious form of malarial fever, and great care must be exercised to avoid exposure after sunset.

The La Guayra and Caracas railway has some of the most picturesque scenery in the world. Twenty-three miles of track are necessary to cover seven as the crow flies, and the curves and zigzags along the coast give glimpses of great grandeur. The disappointing part of the landscape lies in barren soil and unmistakable signs of aridity. Curious cereuses and acacias or *Prosopis*, and a gigantic species of *Asclepias* with flowers three times the size of our *A. Cornuti* attract one's attention, while the fine-leaved forest trees in the valleys give the landscape a much more northern aspect than would be expected. Two views strike the traveler most favorably; one from a curve in the road which overlooks the coast, where, spread out below, are plantations of sugar cane and banana, fringed with the most graceful of cocoanut palms that stand out like dark green plumes against the white surf; and the second, some distance nearer Caracas, where the road crosses a ravine which drops into a narrow valley, 1500 feet deep and completely clothed with forest.

The vegetation effect, while most impressive, is not truly luxuriant, and unmistakable signs of aridity are everywhere present. Curious arid ridges and isolated peaks along the sides of scantily covered valleys give the impression of poor soil and rapid erosion. There is a rumor that these arid patches were once wooded, but that injudicious removal, constant forest fires, and later prairie fires have denuded them. Dr. Ernst, the Venezuelan botanical authority in Caracas, does not believe this. He declares they have been barren from prehistoric times.

Caracas lies 2632 feet above the sea, surrounded by barren hillsides whose summits are covered with dense forest.

There is very little of botanical interest in Caracas itself. A few interesting private gardens lie across the small stream which flows through the town. One in particular contained a number of curious cultivated plants. In it was the most remarkable fountain I have ever seen. From a hideous cement imitation of a boa constrictor spouted a small stream of water. Around, on little artificial islands, were statues of storks in the act of swallowing. Growing on these islands were large guava trees, oranges in fruit, and tufts of Egyptian papyrus, while for a border to the basin a row of blossoming strawberry plants and Chinese hibiscus bushes had been planted.

The coffee estate of Señor R. Dalla Costa Mosquera, one of the few within the city limits, is well worth a visit and has in it a magnifi-

cent avenue of St. Domingo mahogany trees. It illustrates the coffee culture of Venezuela very well, which is in marked contrast to that of Brazil by its employment of shade trees. These cast a relatively deep shade over the whole plantation, and gave the impression of a thickly planted grove. In Brazil no shade trees are employed, and in Ceylon and Java they are planted very sparsely among the coffee trees. I seriously questioned the advisability of such heavy shading and was informed simply that it was considered advantageous. Some of the best coffee in the world is grown in Venezuela, but very little of it reaches the American market because the latter demands principally the cheaper Brazilian sorts. On the best Venezuelan estates the method of pulping the coffee berry before drying is in use, while the majority of Brazilian coffee growers still cling to the old method of drying the berry first and removing the dried pulp afterward. There are large Brazilian estates where this method has been given up and the best machinery is in use.

Nothing was seen in Caracas of the cocoa industry, although some of the finest cocoa in the world is grown along the Venezuelan sea-coast and in the interior about Maracaibo.

In every city one of the most interesting places for a botanist is the market, and in Caracas it is characterized by an extraordinary show of flowers. Tuberoses, white double violets, delicate purple irises, Easter lilies, and curious bouquets made up of double columbines, marigolds and lilies surrounded with tissue-paper lace were most in favor at carnival time. Curious pear-shaped, thick-skinned shaddocks which are used for preserve making; long, chocolate-brown, melon-like squashes, with orange-yellow flesh; immense green watermelons with squash-like meat, showing how careless the growers are about the interbreeding of their squashes and melons; bright yellow "curcumas" with orange-colored, mealy flesh, related to the curcumas of Peru, which are used in the manufacture of a favorite ice; peaches and apples of inferior quality grown in the mountains of the interior; together with the usual number of vegetables of quite inferior varieties compose the piles of produce on the well regulated stalls. This part of the market is much more appetizing than the other section, where the most disgusting looking strings of salted meat are hung for sale.

There is in Caracas a National Society of Agriculture which aims to diffuse intelligence regarding the culture of agricultural products,

to teach the use of fertilizers and soiling crops, etc. But it is governmental, and when that is said of almost any concern in South America, it means that it is subject to rapid political changes.

The courtesy of Mr. Alamo, Assistant Secretary of Agriculture and Mr. Romero, secretary of the society, could scarcely have been greater.

To any foreign scientist, Dr. A. Ernst, the professor of botany in the University, is an invaluable acquaintance. His long experience with Venezuelan conditions and his fund of information on the botanical resources of the country are the result of a wide acquaintance and numerous expeditions into the interior. His advanced years make it impossible for him to continue his work as a collector, but his vigorous mind and excellent memory make his suggestions most valuable to a traveling scientist.

As a young German botanist he came to Venezuela on a collecting trip and was invited by the government to remain. Revolution has followed revolution, but, through his refusal to meddle in the politics of the country in the first place, and his undeniable ability as a scientist in the second, he has kept the position he now holds as one of the most profound scientists and highly esteemed citizens of the republic. His years of labor in an attempt to educate Venezuelan youth to an appreciation of botany have not, it must be regretted, left him hopeful of the final outcome, and from what the writer could learn there is nothing to encourage foreign scientists to engage in governmental work in Venezuela.

Two railways lead from Caracas into the interior, one English, the other German; neither, however, takes the traveler anywhere near the most interesting region of the Sierra Nevada, which lies, by mule or horseback, some four to five days travel from Caracas. In this Sierra Nevada range are snow-capped peaks and a vegetation that is said to be most luxuriant and peculiar. For the botanical explorer this interior mountain region will prove rich in new forms. Mr. André of Trinidad, a well-known orchid collector, informs me, however, that orchids are more abundant near the coast in the neighborhood of Cumana. In order to explore these interior regions the traveler must have at least a fair knowledge of the Spanish language and should arrange his baggage in square leather boxes not over two feet in largest dimension, suitable for donkey or mule transport. The food obtainable will be of the very poorest quality; and, as the *peones* live in huts

of most unsanitary character, great care will be necessary to avoid contracting the numerous diseases associated with such conditions.

Caracas is not a favorable place from which to explore the resources of Venezuela. It lies too far from the most interesting portions of the country. The Orinoco can be ascended better from Trinidad, and the Sierra Nevada requires an expedition on muleback to reach it. From descriptions given by travelers on the Orinoco and its branches, the dangers from fever in the forest regions of Venezuela are very great, and anyone undertaking their exploration risks his life. Mr. E. André, whose travels into the interior have been as extensive as any of recent years, said he would not think of taking with him any person who had not lived at least two years in the tropics and become acclimated as far as possible to conditions similar to those in Venezuela.—
DAVID G. FAIRCHILD, *U. S. Department of Agriculture.*

SOME SPECIES OF TETRANEURIS AND ITS ALLIES.

WE sometimes hear the statement that the difficulties for the systematic botanist are being multiplied by the breaking up of so many of the old genera and the creation of new species from former aggregates, but practical experience shows, it seems to me, that segregation, when based on describable characters, certainly simplifies. The replacing of the untenable *Actinella* by *Tetranneuris*, *Rydbergia*, and *Picradenia* (Pitt. 3: 265), is a case in point.

The reduction of several good species to one (an aggregate) makes necessary a description so general that the amateur in the field has no difficulty in placing the most aberrant form until he collects a suite of specimens clearly unlike. In the past, reduction of species has often occurred because certain ones were rare and hence not well represented in the herbaria, but it seems unfair to eliminate a species simply because it exists in a locality not easily accessible or rarely visited.

Being located in the center of distribution of *Tetranneuris* and its allies, I became interested in the group. The following notes and descriptions are offered as supplementary to Dr. Greene's valuable paper cited above.

TETRANEURIS ACAULIS (Pursh) Greene, Pitt. 3: 265. 1898.

Galardia acaulis Pursh, Fl. 2: 743. 1814. *Actinella acaulis* Nutt. T. & G. Fl. 2: 381. 1842, etc.



Fairchild, David. 1899. "Notes of Travel. I." *Botanical gazette* 28(2), 122–126.
<https://doi.org/10.1086/327881>.

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